Translation:

WRITTEN REPORT FROM THE INTERNATIONAL SEARCHING AUTHORITY (SUPPLEMENT)

International filing Number PCT/EP2004/006314

Re Point V.

1. Reference is made in the present report to the following documents:

D1: US No 2002/162995 A1

D2: MIKHAILOV SA 'A New Type of Tunable Solid-State Far-Infrared Lasers' CONF LASERS ELECTRO OPT EUR TECH DIG 14th September 1998 (1998-09-04), pages 92-92, XP010306688

D3: US No 2003/052317 A1

D4: WALTER G ET AL: 'Room temperature continuous photopumped laser operation of coupled InP quantum dot and InGaP quantum well InP – InGaP – In(AlGa)P – InAIP heterostructures; APPLIED PHYSICS LETTERS, AMERICAN INSTITUTE OF PHYSICS, NEW YORK, US, Vol 79, No 13, 24th September 2001 (2001-09-24), pages 1956-1958, XP012028957

D5: US No 2003/059998 A1

D6: GB No 2 352 087 A

D7: US No 2002/075924 A1

2. Claims 1, 11 and 12

2.1 The present application does not comply with the requirements of Article 33(1) PCT because the subject-matter of claims 1 and 11 is not novel in pursuance of Article 33(2) PCT.

Document D1 discloses (see Figures 1 and 2 and the related description) a quantum well structure (110) between two barrier layers and quantum dots (108) in a barrier. The presence of the quantum dots provides that lateral homogeneity is automatically compensated or modulated (implicitly for the man skilled in the art). The subject-matter of claims 1 and 11 is therefore not novel (Article 33(2) PCT).

2.2 The present application does not comply with the requirements of Article 33(1) PCT because the subject-matter of claims 1 and 12 is not novel in pursuance of Article 33(2) PCT.

Document D3 discloses (see Figures 18 and 19 and the related description) a quantum cascade laser with quantum wells between barriers (41, 42, 43) and quantum dots (3a, 3b, 3d, 3c) in a barrier (4). The presence of the quantum dots provides that lateral homogeneity is automatically compensated or modulated (implicitly for the man skilled in the art). The subject-matter of claims 1 and 12 is therefore not novel (Article 33(2) PCT).

D4 (see Figure 1 and related description) discloses a laser structure with quantum dots (QD) in a barrier (B) and a quantum well structure (QW). The presence of the quantum dots provides that lateral homogeneity is implicitly compensated or modulated. The subject-matter of claim 1 is therefore not novel (Article 33(2) PCT).

D5 (see Figures 6-9 and related description) or D6 (see Figures 24-30 and related description) or D7 (see Figure 3 and related description) discloses quantum dots which are surrounded by barrier layers and adjoining quantum well structures. The subject-matter of claims 1 and 11 is therefore not novel (Article 33(2) PCT).

3. Claims 1, 11 and 12 (Article 33(3) PCT):

D2 discloses replacing metal lattices by quantum wires or quantum wells. The man skilled in the art would therefore replace conventional QWIP or quantum cascade lasers which are provided with metal lattices (see for example pages 3 and 4 of the present application) for coupling photons in or out by quantum wires or quantum dots as proposed in D2 and thereby arrive at the subject-matter of claims 1, 11 and 12 (lack of inventive step, Article 33(3) PCT).

Claims 2 - 10

Claims 2 – 10 do not recite any features which in combination with the features of any claim to which they refer satisfy the requirements of the PCT in regard to novelty or inventive step.

Self-organised quantum dots are known from D1 – D6 (claims 2, 3, 4, 9 and 10). Quantum wires are generally known (see for example D2, claim 5).

Claims 6 and 7: InAs/AlAs and InAs/InP are conventional material systems for quantum dots (see for example D6, D4 or D7).

Claim 8: D3 or D5 show a plurality of quantum wells.